

P a t e n t c l a i m s

1.

5 A pedal device in an apparatus for physical training and rehabilitation, for example, a bicycle or fitness machine, wherein the pedal has a pedal body which has a first engagement part in the form of a bracket designed for engagement with a second engagement part in the form of an engagement piece that is attachable to a functional part designed to cooperate with a user's foot, characterised in

- 10 - that the front and rear fastening hooks of the bracket and the front and rear coupling members of the engagement piece are designed to allow the engagement piece to tilt in a limited way relative to the bracket, transverse to a longitudinal axis extending between the front and rear coupling members of the engagement piece;
- 15 - that the front and rear coupling members of the engagement piece are rounded to allow a rotational movement relative to the fastening hooks of the bracket; and
- that the front fastening hook of the bracket is rounded to allow the forward part of the engagement piece rotational movement; and
- 20 - that the rear fastening hook of the bracket is spring-loaded for attachment of the rear coupling member of the engagement piece and has a rounded portion to allow the rear coupling member a rotating and sliding movement. (Figs. 1-4)

2.

A pedal device as disclosed in claim 1, characterised in

- 25 - that during normal use the spring-loaded rear fastening hook of the bracket holds the engagement piece tiltably in place in the bracket; and
- that by a twisting of the fastening piece effected in the horizontal plane of the bracket, the spring-loaded hook is designed to yield to the movement and release the fastening piece from the bracket.

30 3.

A pedal device as disclosed in claim 1, characterised in

- that the engagement piece is tiltable to both sides relative to the bracket and the pedal body by an acute angle.

35 4.

A pedal device as disclosed in claim 1, characterised in

- that the fastening piece is designed to be fastened to the functional part in the form of a shoe and/or a plate that forms a foot engagement part of the pedal when the fastening piece is fastened in said bracket.

5 5.

A pedal device for rotatable attachment to a crank arm in an apparatus for physical training and rehabilitation, for example, a bicycle or fitness machine, wherein the device comprises a pedal body that is rotatably attached to a pedal shaft which at a free end thereof can be fastened to the crank arm, wherein the engagement
10 faces of the pedal body have brackets adapted for possible engagement with a functional part intended for cooperation with a user's foot, characterised in

- that one of the engagement faces of the pedal body has a first bracket adapted to a fastening piece for the functional part for use during the performance of conventional training exercise, and wherein the opposite engagement face of the
15 pedal body has a second bracket adapted to said fastening piece for the functional part for limited tiltability about an axis extending transverse to the longitudinal axis of the pedal. (Fig. 3)

6.

20 A pedal device as disclosed in claim 5, characterised in

- that the first bracket, when seen in relation to the second bracket, is additionally made having side supports designed to bear against the fastening piece and prevent its tiltability relative to the bracket.

25 7.

A pedal device for rotatable attachment to a crank arm in an apparatus for physical training and rehabilitation, for example a bicycle or fitness machine, wherein the device comprises a pedal body that is rotatably attached to a pedal shaft which at a free end thereof can be fastened to the crank arm, wherein the engagement
30 faces of the pedal body have brackets adapted for possible engagement with a fastening piece secured to a functional part designed for cooperation with a user's foot, characterised in

- that one of the engagement faces of the pedal body is for use during the performance of conventional training exercise; and
- 35 - that the opposite engagement face of the pedal body has its bracket tiltably attached to the pedal body about an axis that extends transversely through a longitudinal axis to the longitudinal axis of the pedal shaft. (Figs. 5-6)

8.

A device as disclosed in claim 7, characterised in

- that the brackets are equipped with spring-loaded means for the fastening of a fastening piece secured to a functional part in the form of a cycling shoe or foot engagement part such as a foot plate.

9.

A device as disclosed in claim 7, characterised in

- that the tiltable bracket is tiltable to both sides relative to the pedal body by an acute angle.

10.

A device for attachment to a shoe and for use on a pedal of an apparatus for physical training and rehabilitation, for example a bicycle or fitness machine, wherein the device has a fastening piece that is fastenable to a functional part designed for cooperation with a user's foot, and wherein the fastening device is designed for snap engagement with a bracket on the pedal body of the pedal, characterised in

- that the fastening piece has a tilting piece tiltable mounted therein;
- that the underside of the fastening piece has an angled surface;
- that the snap-in part of the fastening piece, which is designed for snap fastening to the bracket, is secured to said tilting piece and is in contact with said underside. (Figs. 7-8)

11.

A device as disclosed in claim 10, characterised in

- that the functional part in the form of a shoe sole or foot engagement part, e.g., a foot plate, is allowed to tilt about an axis transverse to the pedal shaft of the pedal when the snap-in part is fastened in the bracket, and the tiltable part secured to the fastening piece which in turn is positioned in the bracket on the pedal allows a shoe to tilt transverse to the axis of the rotational direction of the pedal.

12.

A device as disclosed in claim 11, characterised in

- that the functional part is tiltable to both sides relative to the bracket and the pedal body by an acute angle.

13.

A pedal device for rotatable attachment to a crank arm in an apparatus for physical training, for example, a bicycle or fitness machine, wherein the device
5 comprises a first pedal part rotatably attached to a pedal shaft which at a free end thereof is attachable to the crank arm, and wherein the first pedal part has a first foot engagement part for use during the performance of conventional training exercise, and a second pedal part with a second foot engagement part, wherein the second pedal part is tiltably secured to the first pedal part about an axis that extends transversely through the
10 longitudinal axis of the pedal shaft, characterised in

- that the first pedal part consists of a central piece containing the pedal shaft;
- that the first pedal part has a frame that forms a said first foot engagement part;
- that the second pedal part has a frame that surrounds the frame of the first pedal part and is tiltably fastened in the frame of the first pedal part via two pins or
15 bolts. (Figs. 9-11)

14.

A pedal device as disclosed in claim 13, characterised in

- that the central piece has four arms to which the frame of the first pedal part is
20 secured.

15.

A pedal device as disclosed in claim 13 or 14, characterised in

- that the second pedal surrounds the central piece and frame of the first pedal and
25 gives free access to at least a part of the pedal shaft of the first pedal and said first foot engagement part.

16.

A pedal device as disclosed in claim 13, 14 or 15, characterised in

- 30 - that the frames of the pedal members are U-shaped; and
- that the U-shaped opening of the second pedal member close to the second foot engagement part is stiffened by a stiffening member that extends between the free legs of the U.

35 17.

A pedal device for rotatable attachment to a crank arm in an apparatus for physical training, for example a bicycle or fitness machine, wherein the device

comprises a pedal with foot engagement part tiltably secured to the pedal shaft body and tiltably about an axis that extends transverse to the longitudinal axis of the pedal shaft; characterised in

- that in cooperation with the pedal body there is provided an adjustable means for
5 in a first position allowing the tiltability of the foot engagement part, and in a second position locking the foot engagement part against tilting motion. (Figs. 12-15)

18.

10 A pedal device as disclosed in claim 17, characterised in

- that the adjustable means consists of a turnable bolt that extends through the pedal body transverse to the longitudinal axis of the pedal shaft;
- that the bolt is turnable relative to the pedal body;
- that the bolt is movable in an elongate hole in the pedal body when the foot
15 engagement part is made to tilt; and
- that the bolt has a part which on the turning of the bolt becomes wedged in a recess in the pedal body for locking the foot engagement part relative to the pedal body. (Figs. 12-13)

20 19.

A pedal device as disclosed in claim 17, characterised in

- that the foot engagement part has a housing through which there extends a turnable part along the longitudinal axis of the pedal shaft, and wherein the part has two adjustable turning positions;
- 25 - that the pedal body has a pin or bolt that is designed to extend into a notch in the part in the first turning position, or into a groove in said part in the second turning position; and
- that said part in cooperation with the pin or bolt in the first position is arranged to lock the pedal body relative to the foot engagement part, and that the said part
30 in the second turning position permits tilting motion of the foot engagement part relative to the pedal body. (Figs. 14-15)